

IN THE CLAIMS:

Claims 1 to 22 (cancelled)

Claim 23 (new): A method for reviewing a large number of medical cases in a screening program, by one or more radiologists, wherein each medical case contains data in the form of a plurality of medical images, each to be viewed in at least one preselected format in the field of digital radiology comprising the steps of:

- a) storing in a memory the data relating to each of a large number of medical cases, each case including of a plurality of medical images;
- b) processing the medical cases consecutively, at a file in a workflow sequence wherein the same preselected images for each case are consecutively processed and viewed in a preselected sequence of image formats, and providing an output thereof while maintaining a first pointer positioned to indicate the step in the workflow sequence ongoing including incrementing the first pointer to the next successive step of the sequence as the workflow progresses;
- c) displaying the output of the workflow so that it can be reviewed and monitored by a radiologist;
- d) maintaining a case stack of the medical cases to be processed and maintaining a second pointer indicative of the medical case undergoing processing in the workflow;
- e) caching in a cache a current preselected medical image in the appropriate format to be currently processed by the workflow;
- f) instructing and controlling by an application program each step of the sequence of steps being performed in the workflow in the file and the cache to call up to the workflow in the file the current preselected medical image of the current medical case of the data to be processed;
- g) determining from the position of the first pointer the next consecutive step to be carried out in the sequence,

- h) responsive to the determination of the first pointer position, checking the cache to determine if the medical image required for the next consecutive step in the sequence is present in the cache in the correct format, and if not, instructing the cache to prefetch the medical image in the correct format and to send it to the cache from a data manager, coupled to the memory and the cache via a plurality of data sources that provide reading, scaling and enhancement formats;
- i) manually inputting a jump instruction to the file to select at random a step in the sequence to be performed including incrementing the pointer to the jumped to step;
- j) responsive to the instruction to the cache regarding prefetching the medical image for the next consecutive step in the sequence, determining in the data manager using data tags indicative of formats one of a plurality of data sources that will effect the correct format;
- k) responsive to the determination using data tags, obtaining from memory and putting the data of the medical image in the determined format in the data manager, and sending the formatted data of the medical image to the cache;
- l) generating a header for each preselected medical image of a medical case that goes into the cache that includes the case number, the image identification image format, requestors, priority of the image and a lock count;
- m) determining upon receipt of a request whether a medical image is in the cache, and if so, incrementing the lock count, incrementing the priority, and informing the requestors;
- n) if a requested medical image is not in the cache, generating the header and setting the lock count 1 and setting the priority to a preselected number above 0;
- o) checking the cache to determine if it has enough space to load a requested medical image in the necessary format;
- p) if so, requesting the medical image from the data manager and memory in the correct format, loading the medical image into the cache, and acknowledging medical image in cache to requestors;

- q) if not, examining the cache to determine all images in the cache with a lock count of 0, and grouping them into a set S, and then examining set S to determine the image with the lowest priority and freeing the determined image with the lowest priority from the cache and decrementing the priorities of all remaining images of set S but not below a lowest value;
- r) repeating step q until the cache has capacity for the requested medical image and loading the requested image into the cache; and
- s) releasing an image from the cache upon request and decrementing the lock count of the image and the priority of the image.

Claim 24 (new): A method according to claim 23 including the further step of user defining the preselected images.

Claim 25 (new): A method according to claim 23 wherein step k) is carried out by an image processing operation being selected from the group consisting of file reading, scaling, CLAHE and wavelet enhancement.

Claim 26 (new): Apparatus for reviewing a large number of medical cases in a screening program, by one or more radiologists, wherein each medical case contains data in the form of a plurality of medical images, each to be viewed in at least one preselected format in the field of digital radiology comprising the steps of:

- a) a memory for storing in the data relating to each of a large number of medical cases, each case including of a plurality of medical images;
- b) a processor for processing the medical cases consecutively, at a file in a workflow sequence wherein the same preselected images for each case are consecutively processed and viewed in a preselected sequence of image formats, and providing an output thereof;
- c) a first pointer positioned to indicate the step in the workflow sequence ongoing including incrementing the first pointer to the next successive step of the sequence as the workflow progresses;

- d) a display for displaying the output of the workflow so that it can be reviewed and monitored by a radiologist;
- e) a case stack for maintaining of the medical cases to be processed,
- f) a second pointer indicative of the medical case undergoing processing in the workflow;
- g) a cache for caching a current preselected medical image in the appropriate format to be currently processed by the workflow;
- h) an application program for instructing and controlling each step of the sequence of steps being performed in the workflow in the file and the cache to call up to the workflow in the file the current preselected medical image of the current medical case of the data to be processed;
- i) means for determining from the position of the first pointer the next consecutive step to be carried out in the sequence;
- j) means for checking the cache to determine if the medical image required for the next consecutive step in the sequence is present in the cache in the correct format, responsive to the determination of the first pointer position, and if not, instructing the cache to prefetch the medical image in the correct format and to send it to the cache from a data manager, coupled to the memory and the cache via a plurality of data sources that provide reading, scaling and enhancement formats;
- k) means for manually inputting a jump instruction to the file to select at random a step in the sequence to be performed including incrementing the pointer to the jumped to step;
- l) means for determining in the data manager, using data tags indicative of formats, one of a plurality of data sources that will effect the correct format, responsive to the instruction to the cache regarding prefetching the medical image for the next consecutive step in the sequence;
- m) means for obtaining from memory and putting the data of the medical image in the determined format in the data manager, responsive to the determination using data tags, and sending the formatted data of the medical image to the cache;

- n) means for generating a header for each preselected medical image of a medical case that goes into the cache that includes the case number, the image identification image format, requestors, priority of the image and a lock count;
- o) means for determining upon receipt of a request whether a medical image is in the cache, and if so, incrementing the lock count, incrementing the priority, and informing the requestors;
- p) means for generating the header and setting the lock count 1 and setting the priority to a preselected number above 0, if a requested medical image is not in the cache;
- q) means for checking the cache to determine if it has enough space to load a requested medical image in the necessary format;
- r) means for requesting the medical image from the data manager and memory in the correct format, loading the medical image into the cache, and acknowledging medical image in cache to requestors, if the means for checking in step q) determines that there is enough space to load the requested medical image in the cache;
- s) means for examining the cache to determine all images in the cache with a lock count of 0, and grouping them into a set S, and then examining set S to determine the image with the lowest priority and freeing the determined image with the lowest priority from the cache and decrementing the priorities of all remaining images of set S but not below a lowest value, if the means for checking in step q) determines that there is not enough space to load the requested medical image in the cache;
- t) repeating step q until the cache has capacity for the requested medical image and loading the requested image into the cache; and
- u) releasing an image from the cache upon request and decrementing the lock count of the image and the priority of the image.

Claim 27 (new): Apparatus according to claim 26 further comprising means for a user to define the preselected images of step b).

Claim 28 (new): Apparatus according to claim 26 further comprising a scheduler coupled to a remote image server via a communication link, the remote image server containing a database of images and the scheduler being adapted to initialize a loading operation of images required for carrying out the workflow.

Claim 29 (new): Apparatus according to claim 26 further comprising a user profile.

Claim 30 (new): Apparatus according to claim 26 wherein the apparatus is contained within a workstation, and further comprising a plurality of such workstations, each coupled to a remote image server via a communication link, the remote image server containing a database of images, each such workstation containing a scheduler being adapted to initialize a loading operation of images required for carrying out the workflow in its respective workstation.

Claim 31 (new): Apparatus according to claim 26 wherein the means for requesting the medical image from the data manager and memory in the correct format further comprises an image processor for processing a retrieved image into a format selected from the group consisting of file reading, scaling, CLAHE and wavelet enhancement.